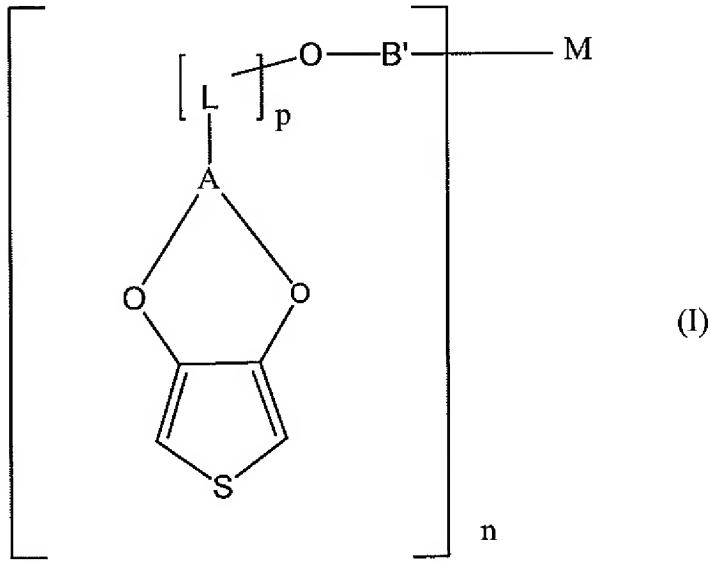


AMENDMENTS TO THE CLAIMS

Claims 1-45 (Canceled).

46. (Currently Amended) A ~~3,4-Alkylenedioxythiophenes~~ 3,4-Alkylenedioxythiophene of the formula (I),



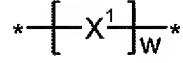
wherein

A is a C₁ or C₃-C₅-alkylene radical which is substituted at any point by a linker L and optionally bears further substituents,

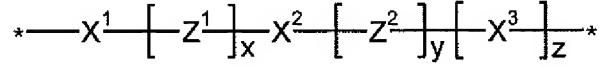
L is a methylene group,

p is 0 or an integer from 1 to 6,

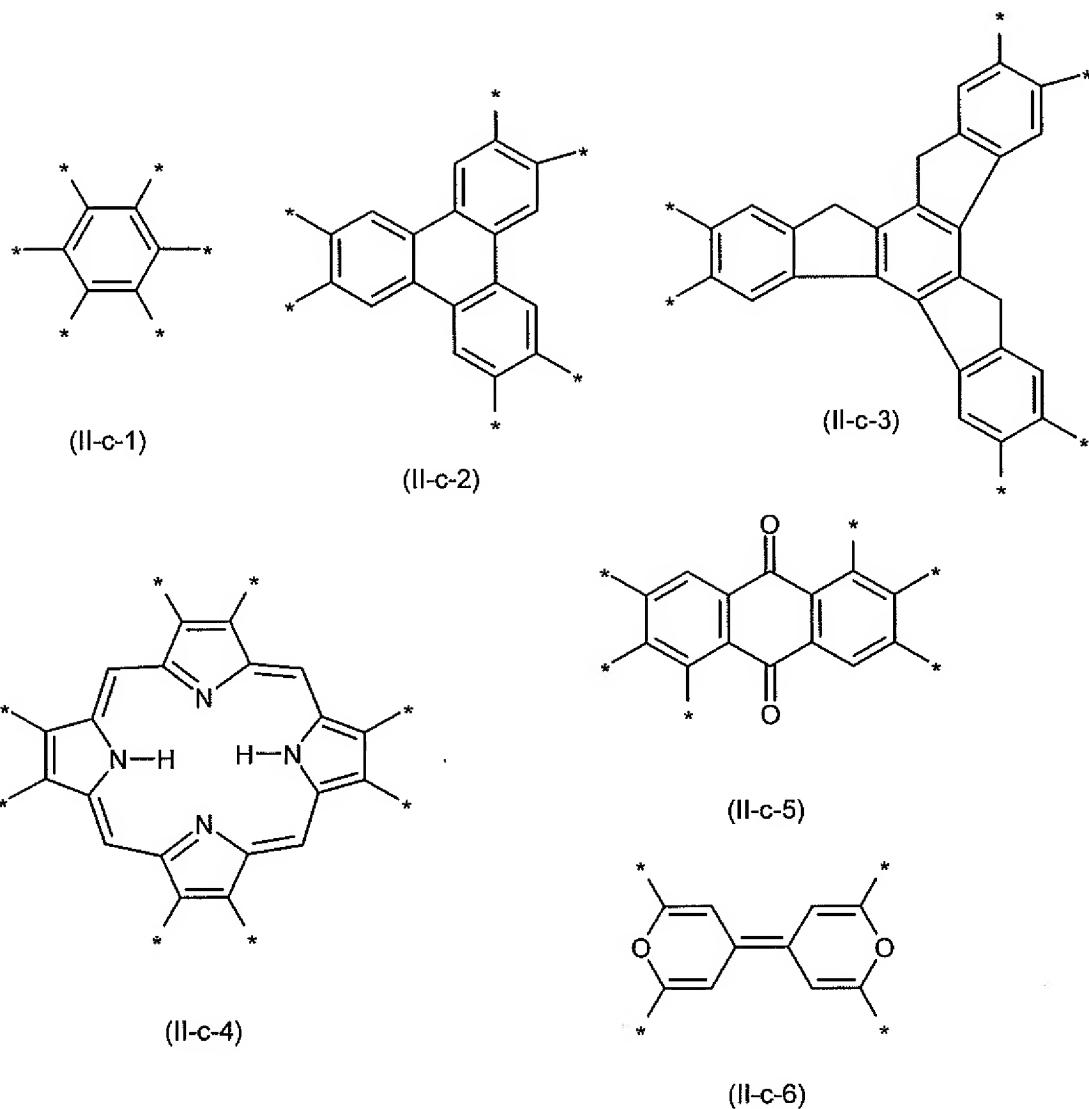
M is an n-functional group of the formula (II-a), (II-b) or (II-c-1) to (II-c-6),



(II-a)

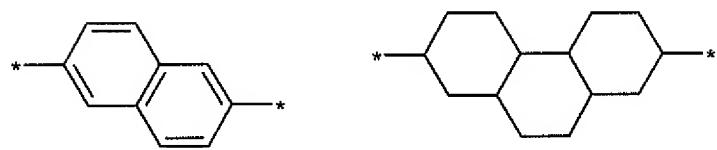
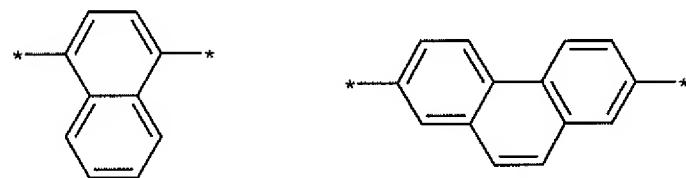
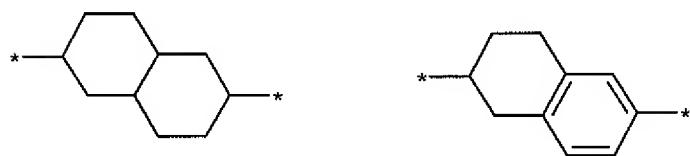
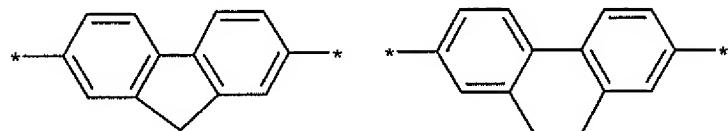
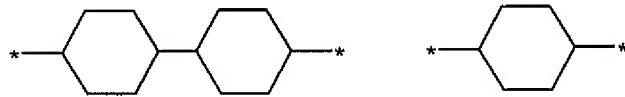
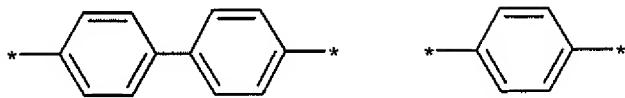


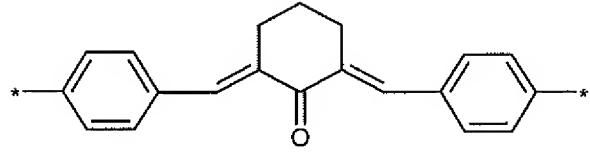
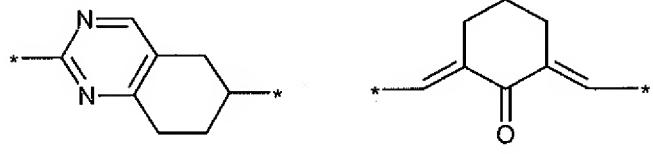
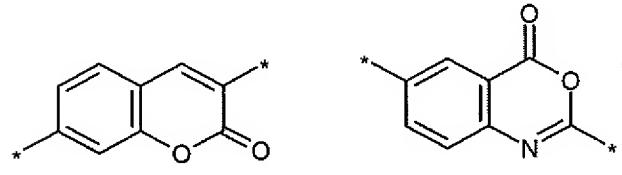
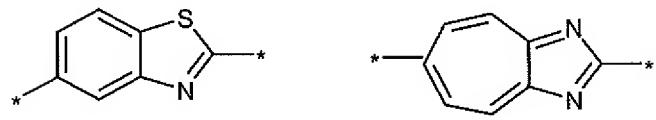
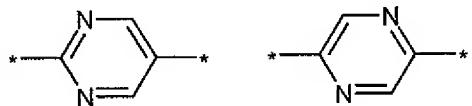
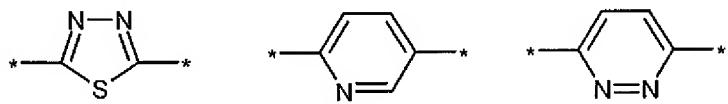
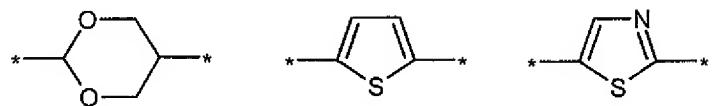
(II-b)



wherein

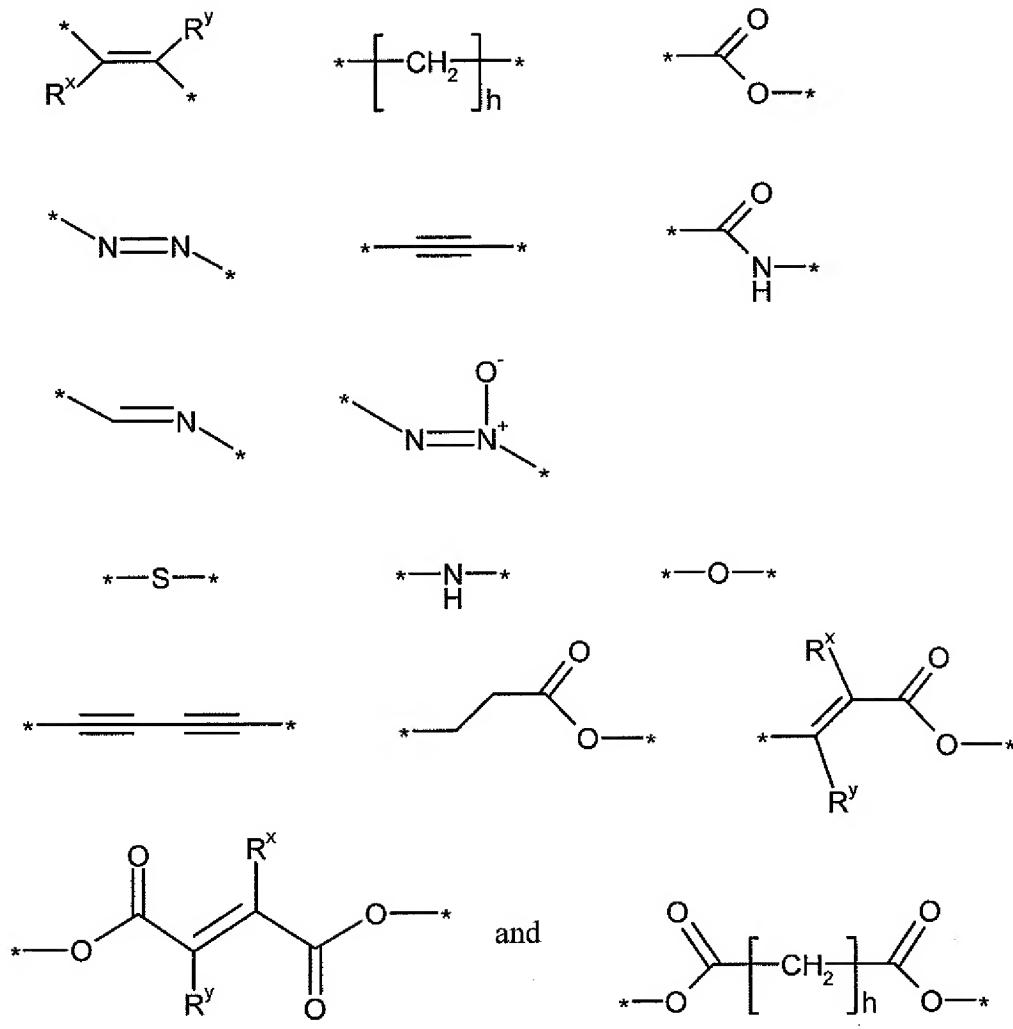
X^1 , X^2 and X^3 are substituted or unsubstituted structures selected independently from the group consisting of





and

Z^1 and Z^2 are structures selected independently from the group consisting of



wherein

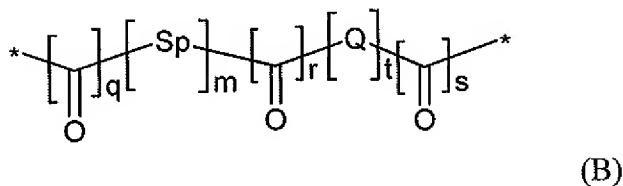
R^x and R^y are each, independently of one another, H, substituted or unsubstituted C₁-C₂₂-alkyl, C₁-C₂₂-haloalkyl, C₁-C₂₂-alkenyl, C₁-C₂₂-alkoxy, C₁-C₂₂-thioalkyl, C₁-C₂₂-iminoalkyl, C₁-C₂₂-alkoxycarbonyl, C₁-C₂₂-alkoxycarbonyloxy, a radical of an aliphatic C₁-C₂₂-alkanecarboxylic acid or of acrylic acid, halogen, pseudohalogen, NO₂, a carboxyl group or a hydroxy group,

h is an integer from 1 to 10,

w is an integer from 1 to 5,

x, y and z are each, independently of one another, 0 or 1, and
n an integer from 1 to 8, where when n is 1, the group of the formula (II-a) or (II-b) bears a terminal group F' at the linkage points denoted by *,
wherein
F' is substituted or unsubstituted C₁-C₂₂-alkyl, C₁-C₂₂-haloalkyl, C₁-C₂₂-alkenyl, C₁-C₂₂-alkoxy, C₁-C₂₂-thioalkyl, C₁-C₂₂-iminoalkyl, C₁-C₂₂-alkoxycarbonyl, C₁-C₂₂-alkoxycarbonyloxy, a radical of an aliphatic C₁-C₂₂-alkancarboxylic acid or of acrylic acid, halogen, pseudohalogen, a nitro (NO₂) group, a carboxyl group, a sulphonate acid group or sulphonate group or a hydroxy group,

B' is a bridging group of the formula (B)



wherein

q is 0 or 1,

r and s are identical or different and each are 0 or 1, with the proviso that when r is 1, s is 0 and vice versa or both are optionally 0,

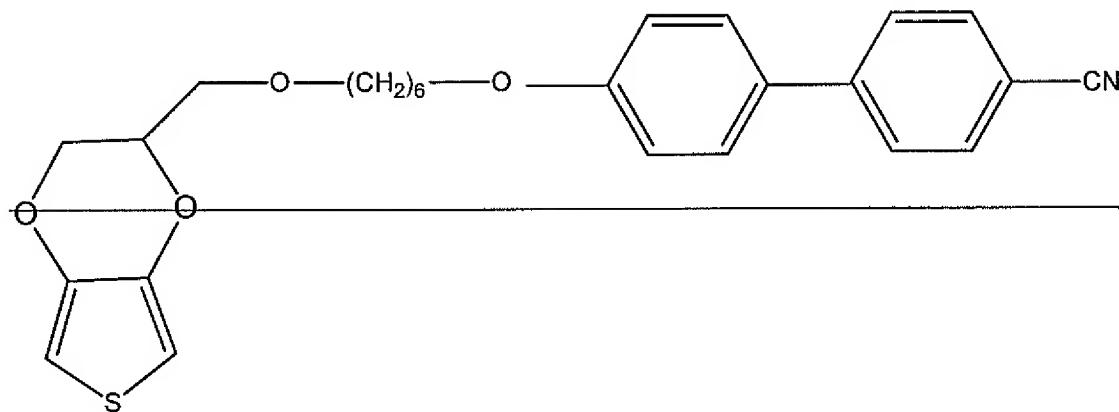
t is 0 or 1,

Sp is a spacer selected from the group consisting of substituted and unsubstituted linear or cyclic C₁-C₂₀-alkylene groups, C₅-C₂₀-arylene groups, C₂-C₂₀-heteroarylene groups in which from one to three heteroatoms selected from the group consisting of N, O and S can additionally be present in the heteroaromatic ring or ring system, C₆-C₂₀-aralkylene groups, C₂-C₂₀-oligoether and -polyether groups,

m is 0 or 1, and

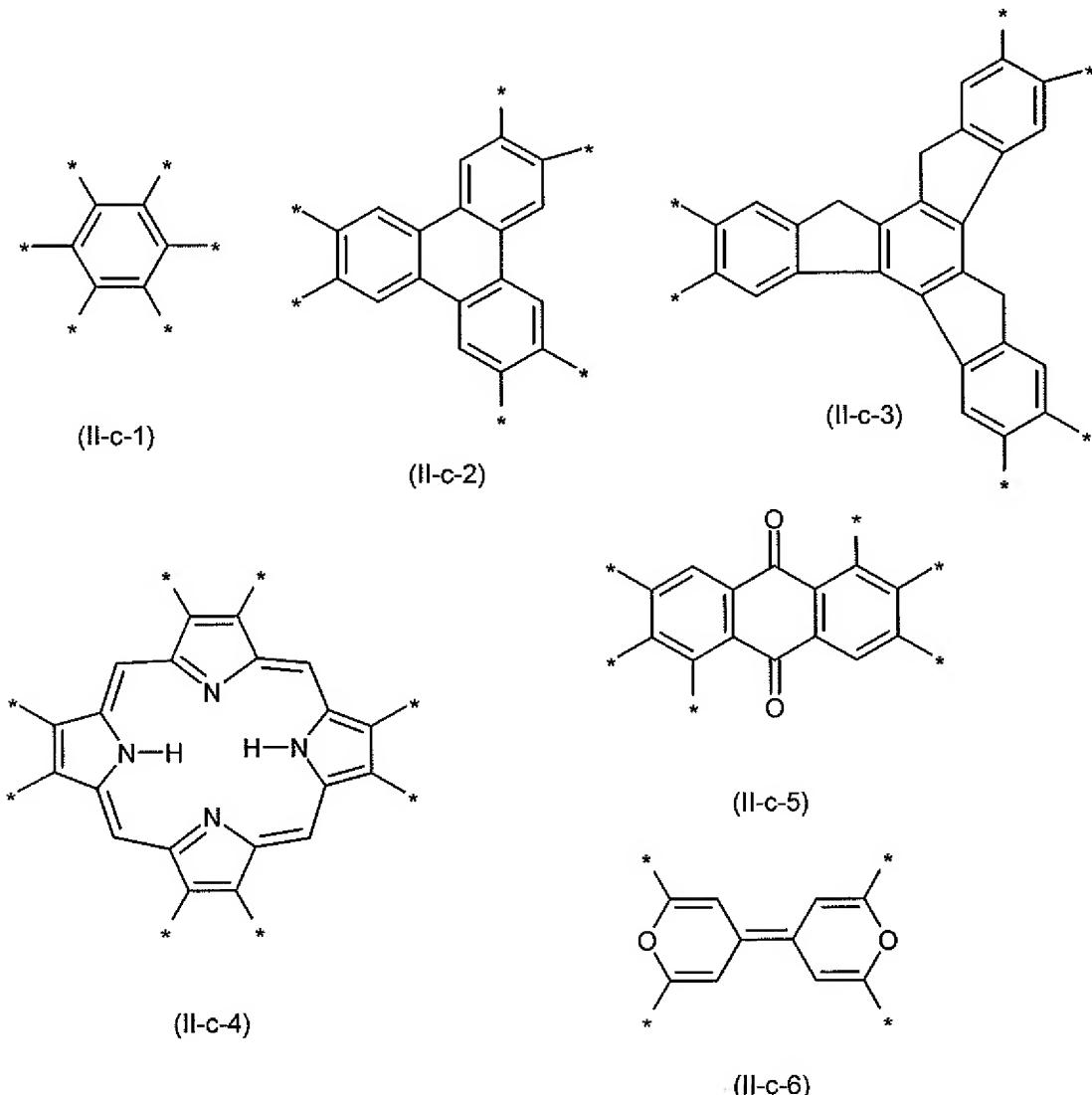
Q is O, S or NH

~~with the proviso that said polythiophenes is not~~



47. (Currently Amended) The 3,4-Alkylenedioxythiophenes 3,4-Alkylenedioxythiophene of claim 46, wherein

M is an n-functional group selected from the group consisting of the formulae (II-c-1) to (II-c-6),



wherein

n is at most 4, 6 or 8,

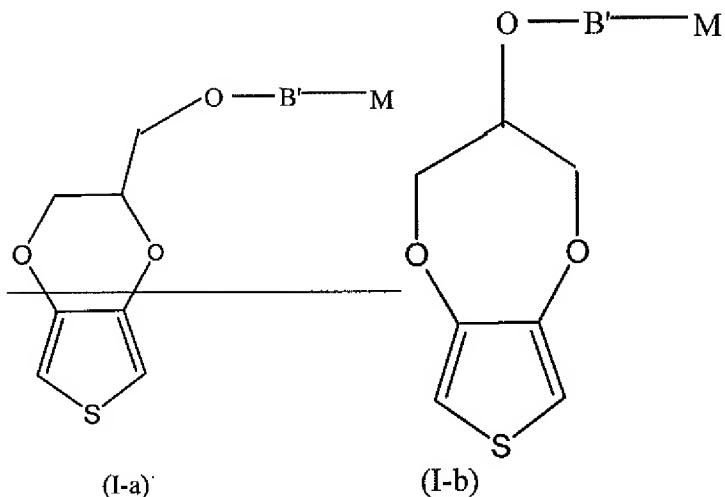
and wherein when n is an integer below 4, 6 or 8, M is selected from the group consisting of the formulae (II-c-1) to (II-c-6) bearing a terminal group F' on the remaining 4 - n, 6 - n or 8 - n linkage points denoted by *,

wherein

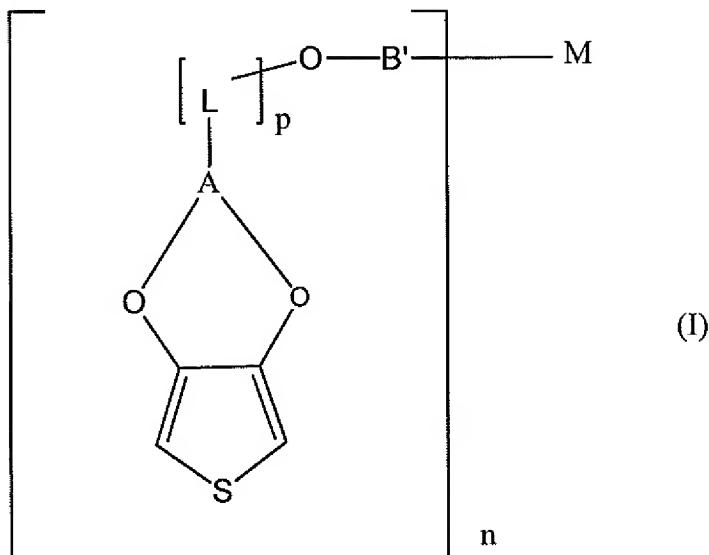
F' is H, substituted or unsubstituted C₁-C₂₂-alkyl, C₁-C₂₂-haloalkyl, C₁-C₂₂-alkenyl, C₁-C₂₂-alkoxy, C₁-C₂₂-thioalkyl, C₁-C₂₂-iminoalkyl, C₁-C₂₂-alkoxycarbonyl, C₁-C₂₂-alkoxycarbonyloxy, a radical of an aliphatic C₁-C₂₂-alkanecarboxylic acid or

of acrylic acid, halogen, pseudohalogen, a nitro (NO_2) group, a carboxyl group, a sulphonic acid group or sulphonate group or a hydroxy group.

48. (Currently Amended) The 3,4-Alkylenedioxythiophene of claim 46, having the structure of the formulae (I-a) or formula (I-b),



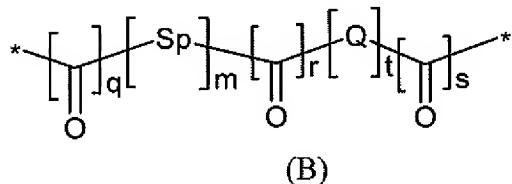
49. (Previously presented) A 3,4-Alkylenedioxythiophene of the formula (I),



(I)

wherein

- A is a C₁-C₅-alkylene radical which is substituted at any point by a linker L and optionally bears further substituents,
- L is a methylene group,
- p is 0 or an integer from 1 to 6,
- M is an n-functional steroid radical or a derivative of a steroid radical,
- n is 1 and
- B' is a bridging group of the formula (B)



(B)

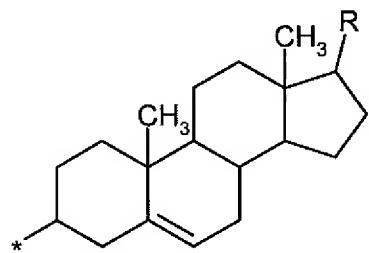
wherein

- q is 0 or 1,
- r and s are each independently 0 or 1, with the proviso that when r is 1, s is 0 and vice versa or both are optionally 0,
- t is 0 or 1,
- Sp is a spacer selected from the group consisting of substituted and unsubstituted linear or cyclic C₁-C₂₀-alkylene groups, C₅-C₂₀-arylene groups, C₂-C₂₀-heteroarylene groups in which from one to three heteroatoms selected from the group consisting of N, O and S can additionally be present in the heteroaromatic ring or ring system, C₆-C₂₀-aralkylene groups, C₂-C₂₀₀-oligoether and -polyether groups,

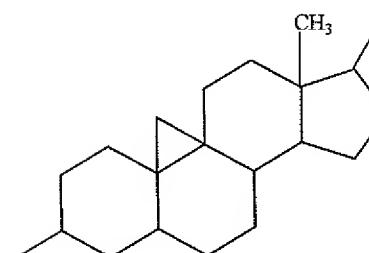
m is 0 or 1,

Q is O, S or NH.

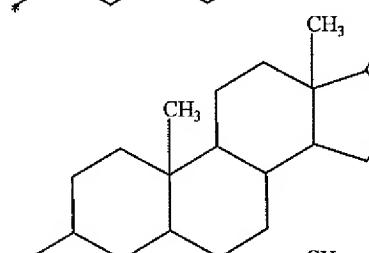
50. (Previously presented) The 3,4-Alkylenedioxythiophene as claimed in claim 49, wherein
M is an n-functional cholesteryl radical or a derivative of the cholesteryl radical of the
formula (III-a)-(III-e),



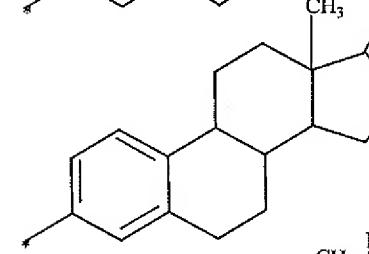
(III-a)



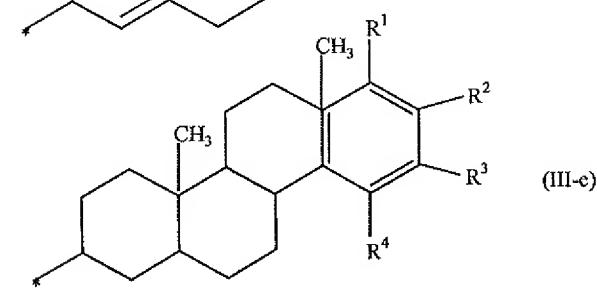
(III-b)



(III-c)



(III-d)



(III-e)

wherein R is H, substituted or unsubstituted C₁-C₂₂-alkyl, C₁-C₂₂-haloalkyl, C₁-C₂₂-alkenyl, C₁-C₂₂-alkoxy, C₁-C₂₂-thioalkyl, C₁-C₂₂-iminoalkyl, C₁-C₂₂-alkoxycarbonyl, C₁-C₂₂-alkoxycarbonyloxy, a radical of an aliphatic C₁-C₂₂-alkanecarboxylic acid or of acrylic acid, halogen, pseudohalogen, a nitro (NO₂) group, a carboxyl group, a sulphonic acid group or sulphonate group or a hydroxy group, and

R¹, R², R³ and R⁴ can, independently of one another, be as defined above for R.

51. (Previously presented) A process for preparing a polythiophene comprising polymerizing the 3,4-alkylenedioxythiophene as claimed in claim 46.

52. (Currently Amended) The process of Claim 51 wherein a mixture of A process for preparing a polythiophene comprising mixing two or more of the 3,4-Alkylenedioxythiophene as claimed in claim 46 to form a mixture two or more compounds of Formula 1 are and polymerizing the mixture polymerized.

53. (Currently Amended) A process for preparing electrical or electronic components, light-emitting components, for antistatic coating, in optoelectronics or in solar energy technology comprising incorporating the polythiophene 3,4-alkylenedioxythiophene according to claim 46.

54. (Cancelled)

55. (Currently amended) A process for preparing electrical or electronic components, light-emitting components, for antistatic coating, in optoelectronics or in solar energy technology comprising incorporating the polythiophene of Claim 54 Claim 70.

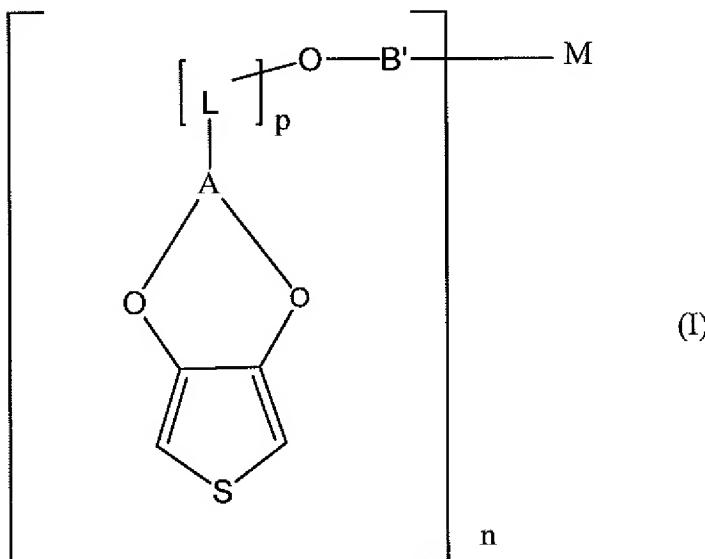
56. (Currently Amended) A process for preparing conductive layers comprising incorporating the polythiophene according to Claim 54 Claim 70.

57. (Currently Amended) The process according to claim 52, wherein the polymerized mixture forms a layer which further comprises heating the layer at a temperature from 80⁰C to 300⁰C.

58. (Previously presented) The process according to claim 56, which further comprises heating the layer at a temperature from 80⁰C to 300⁰C.

59. (Cancelled)

60. (Currently Amended) A process for preparing the polythiophene as claimed in ~~claim 44-claim 70~~, comprising oxidatively polymerizing electrochemically compounds of the formula (I)



wherein

n an integer from 1 to 8, where when n is 1, the group of the formula (II-a) or (II-b) bears a terminal group F' at the linkage points denoted by *.

61. (Cancelled)

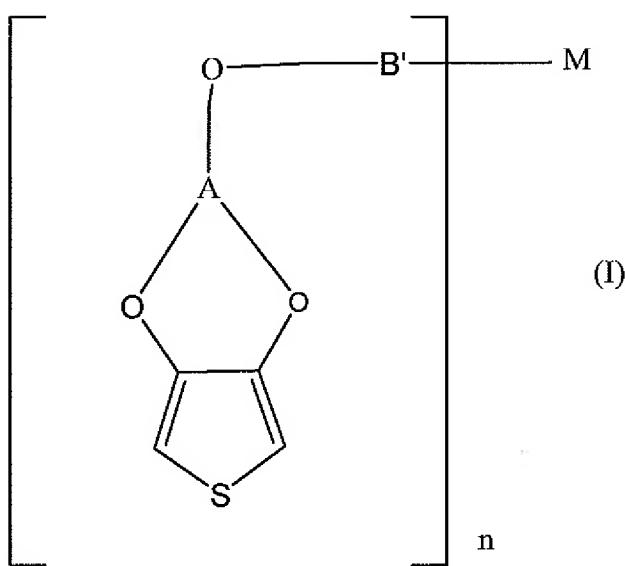
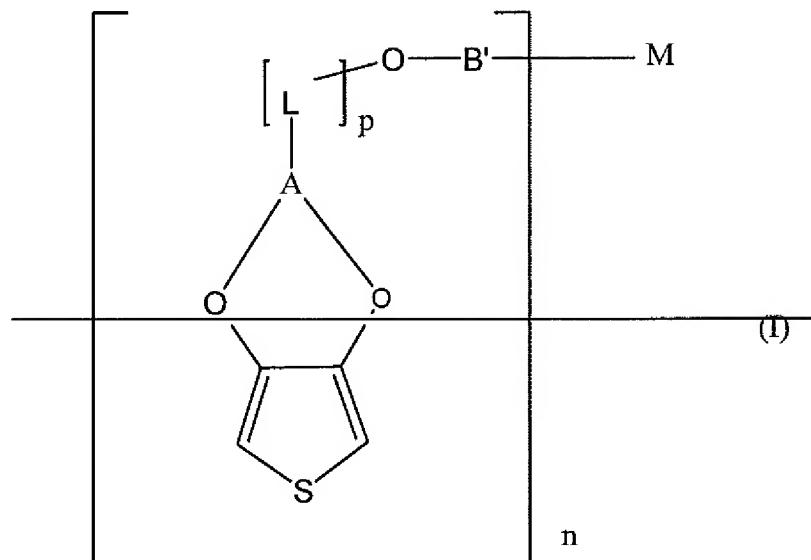
62. (Currently Amended) The polythiophene of ~~claim 59~~ Claim 70, wherein they are cationically and electrically conductive and contain bound anions as counterions to balance the positive charge.

63. (Currently Amended) The polythiophene of ~~Claim 61~~ Claim 62, wherein the counterions are polyanions of polymeric carboxylic acids or polymeric sulphonic acids.

64. (Currently Amended) The polythiophene according to ~~claim 44~~ claim 70, wherein they are uncharged and semiconducting.

65. (Currently Amended) Process for ~~the preparing polythiophene preparing the 3,4-alkylenedioxythiophene~~ as claimed in claim 46 which comprises oxidatively polymerizing electrochemically compounds of the formula (I).

66. (Currently Amended) A 3,4-Alkylenedioxythiophenes 3,4-Alkylenedioxythiophene of the formula (I),



wherein

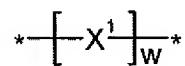
A is a C_1 - C_5 -alkylene radical which is substituted at any point by a linker

L and optionally bears further substituents,

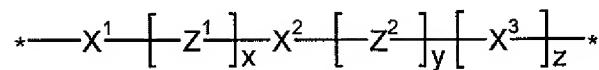
L is a methylene group,

p is 0,

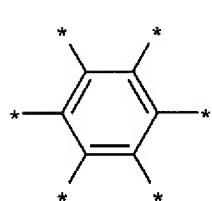
M is an n -functional group of the formula (II-a), (II-b) or (II-c-1) to (II-c-6),



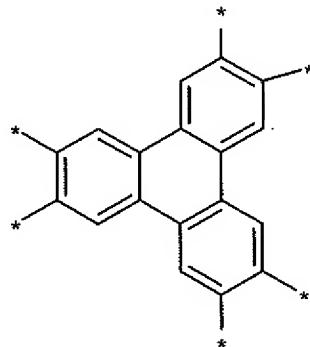
(II-a)



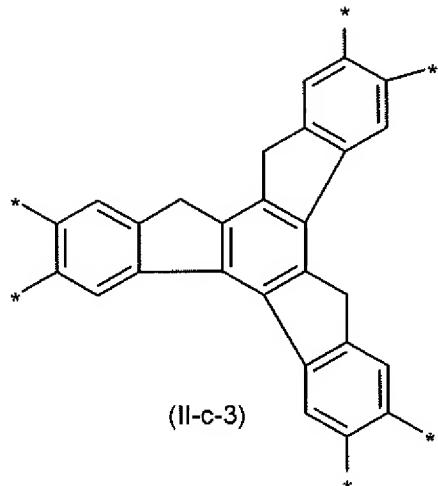
(II-b)



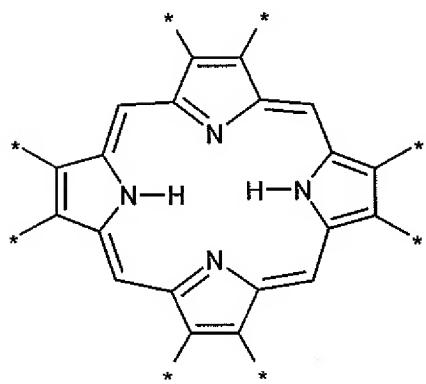
(II-c-1)



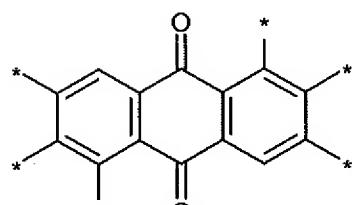
(II-c-2)



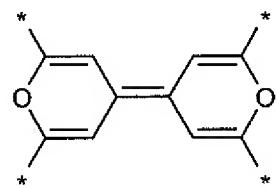
(II-c-3)



(II-c-4)



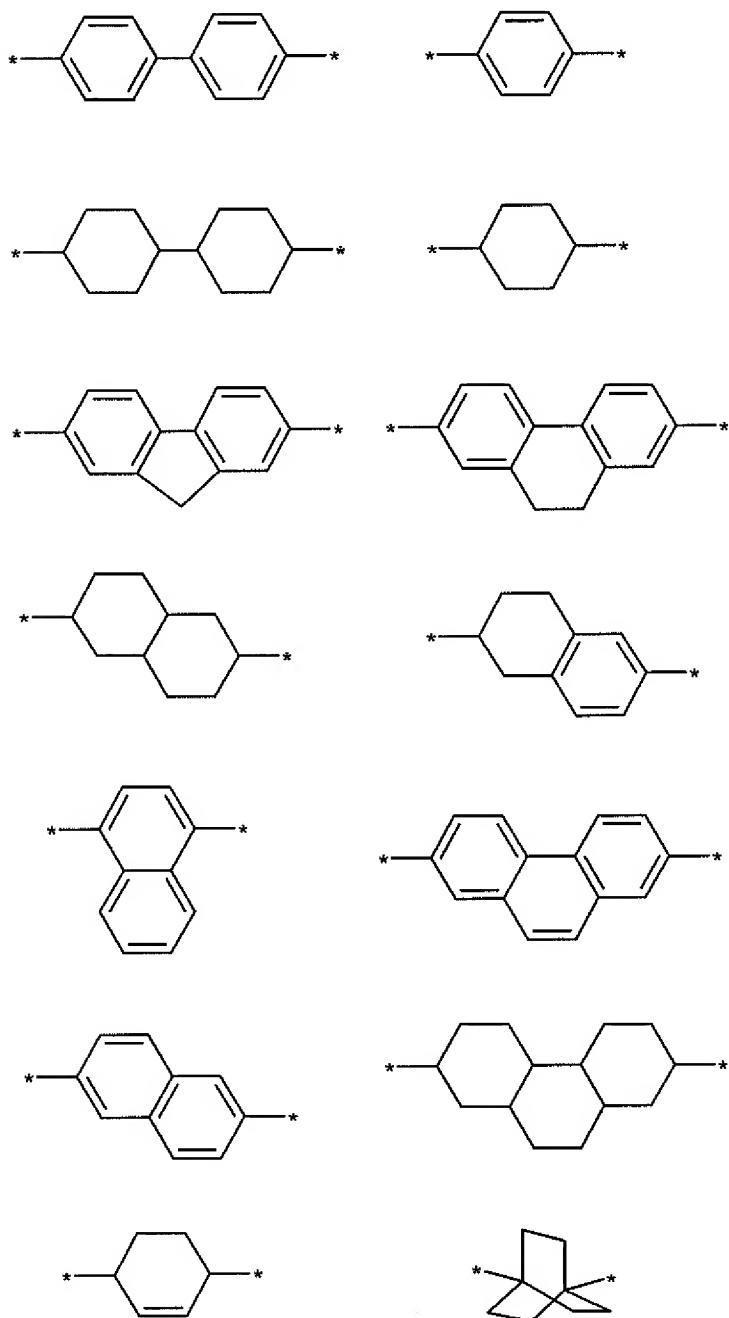
(II-c-5)

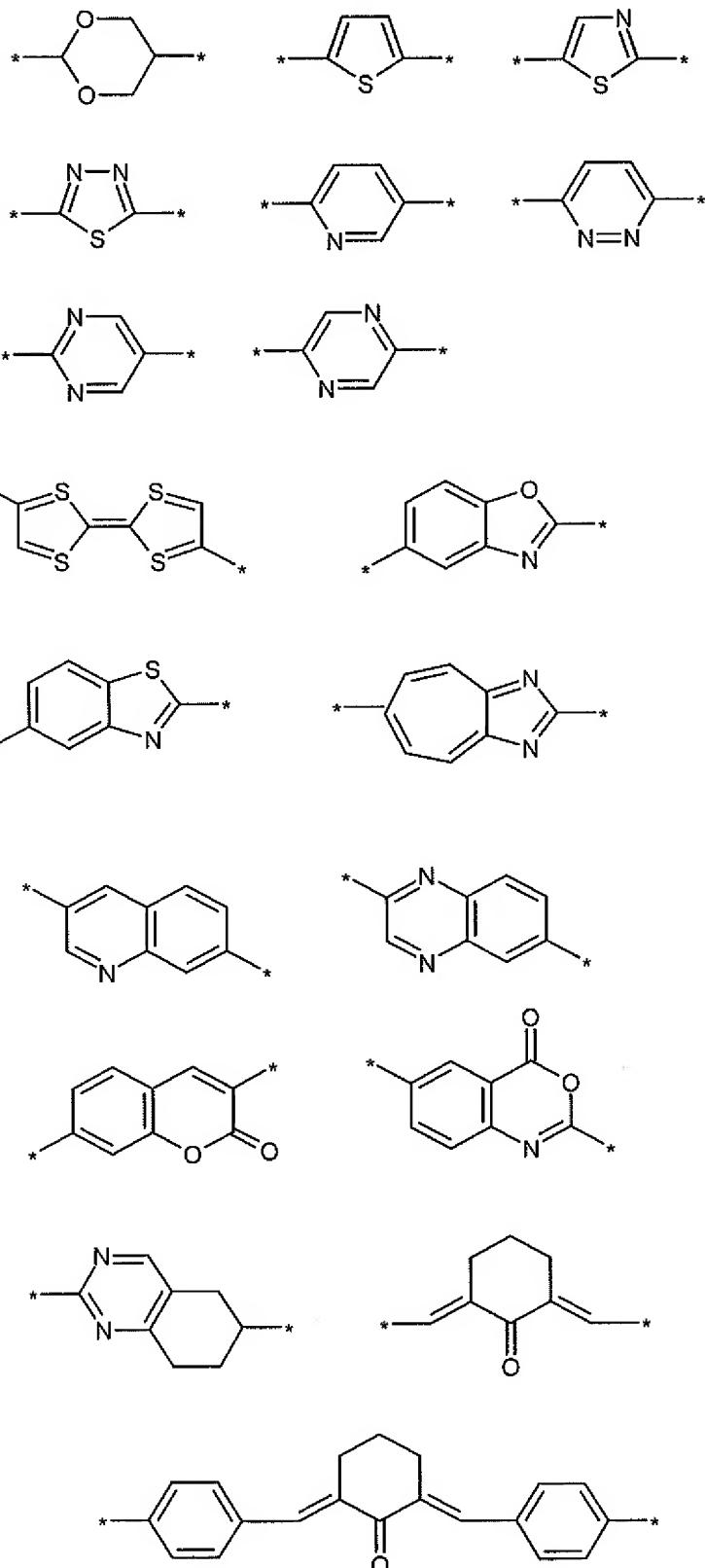


(II-c-6)

wherein

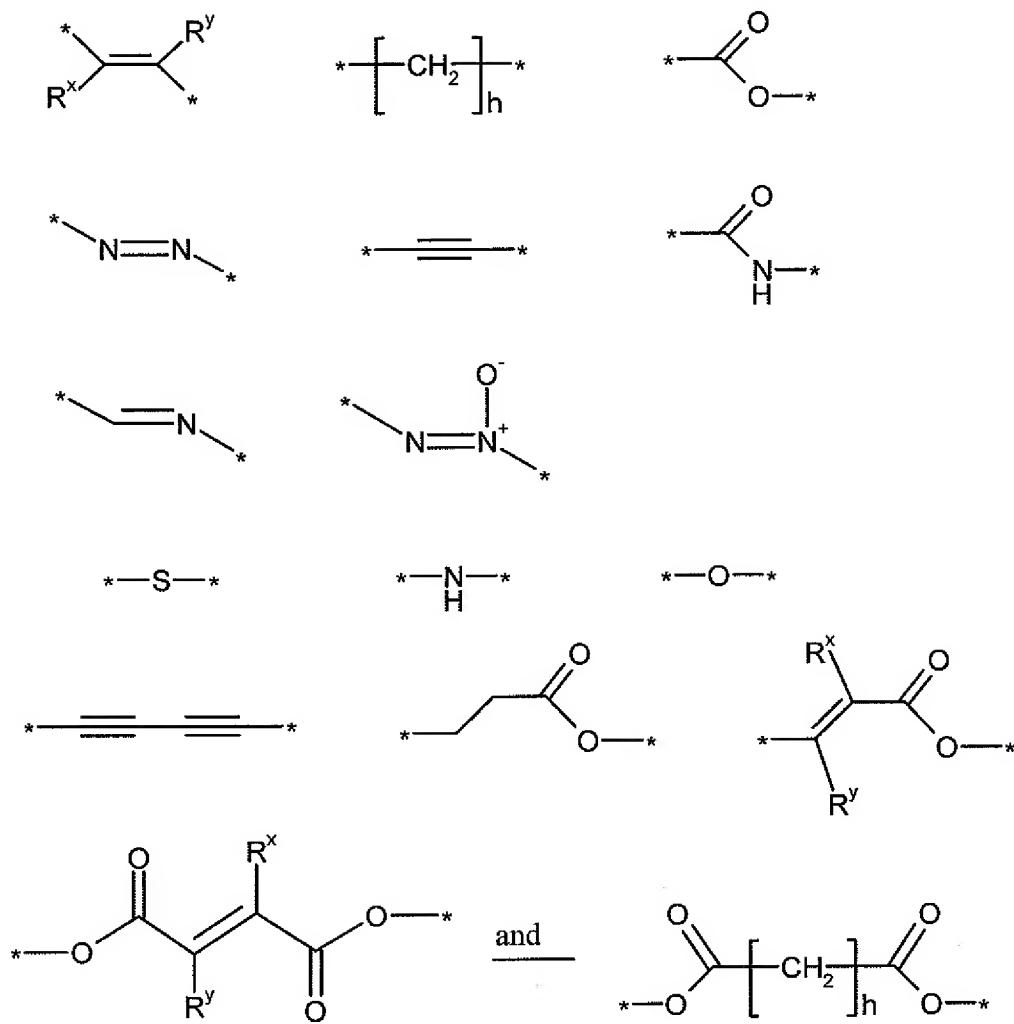
X^1 , X^2 and X^3 are substituted or unsubstituted structures selected independently from the group consisting of





and

Z^1 and Z^2 are structures selected independently from the group consisting of



wherein

R^x and R^y are each, independently of one another, H, substituted or unsubstituted C₁-C₂₂-alkyl, C₁-C₂₂-haloalkyl, C₁-C₂₂-alkenyl, C₁-C₂₂-alkoxy, C₁-C₂₂-thioalkyl, C₁-C₂₂-iminoalkyl, C₁-C₂₂-alkoxycarbonyl, C₁-C₂₂-alkoxycarbonyloxy, a radical of an aliphatic C₁-C₂₂-alkanecarboxylic acid or of acrylic acid, halogen, pseudohalogen, NO₂, a carboxyl group or a hydroxy group,

h is an integer from 1 to 10,

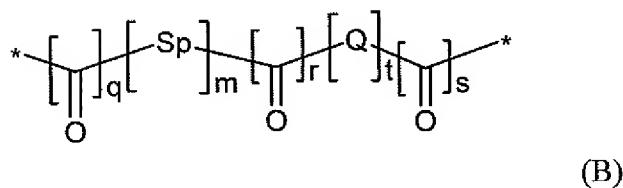
w is an integer from 1 to 5,

x, y and z are each, independently of one another, 0 or 1, and

n an integer from 1 to 8, where when n is 1, the group of the formula (II-a) or (II-b) bears a terminal group F' at the linkage points denoted by *,
wherein

F' is substituted or unsubstituted C₁-C₂₂-alkyl, C₁-C₂₂-haloalkyl, C₁-C₂₂-alkenyl, C₁-C₂₂-alkoxy, C₁-C₂₂-thioalkyl, C₁-C₂₂-iminoalkyl, C₁-C₂₂-alkoxycarbonyl, C₁-C₂₂-alkoxycarbonyloxy, a radical of an aliphatic C₁-C₂₂-alkanecarboxylic acid or of acrylic acid, halogen, pseudohalogen, a nitro (NO₂) group, a carboxyl group, a sulphonate group or a hydroxy group,

B' is a bridging group of the formula (B)



wherein

q is 0 or 1,

r and s are identical or different and each are 0 or 1, with the proviso that when r is 1, s is 0 and vice versa or both are optionally 0,

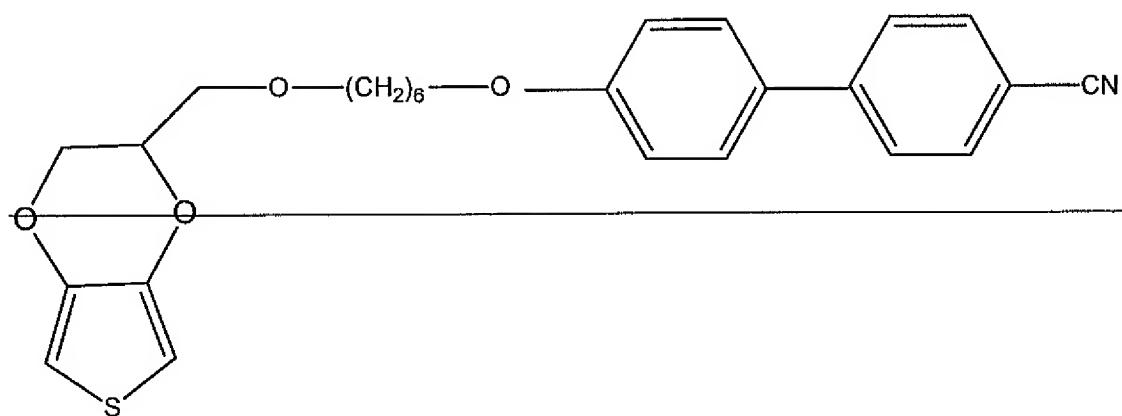
t is 0 or 1,

Sp is a spacer selected from the group consisting of substituted and unsubstituted linear or cyclic C₁-C₂₀-alkylene groups, C₅-C₂₀-arylene groups, C₂-C₂₀-heteroarylene groups in which from one to three heteroatoms selected from the group consisting of N, O and S can additionally be present in the heteroaromatic ring or ring system, C₆-C₂₀-aralkylene groups, C₂-C₂₀-oligoether and -polyether groups,

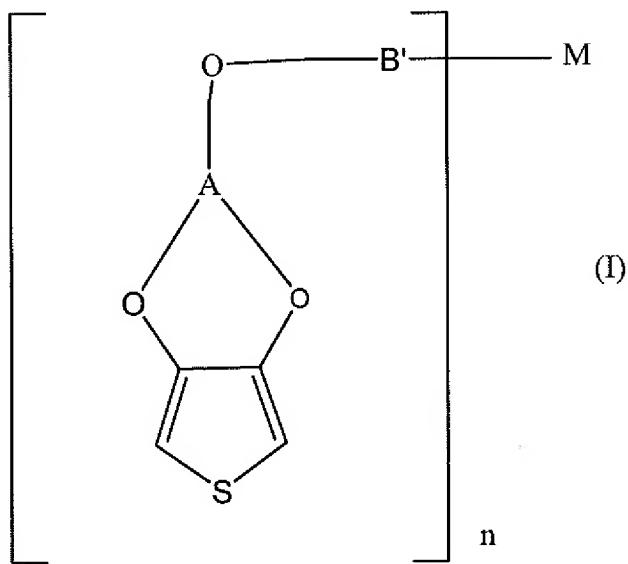
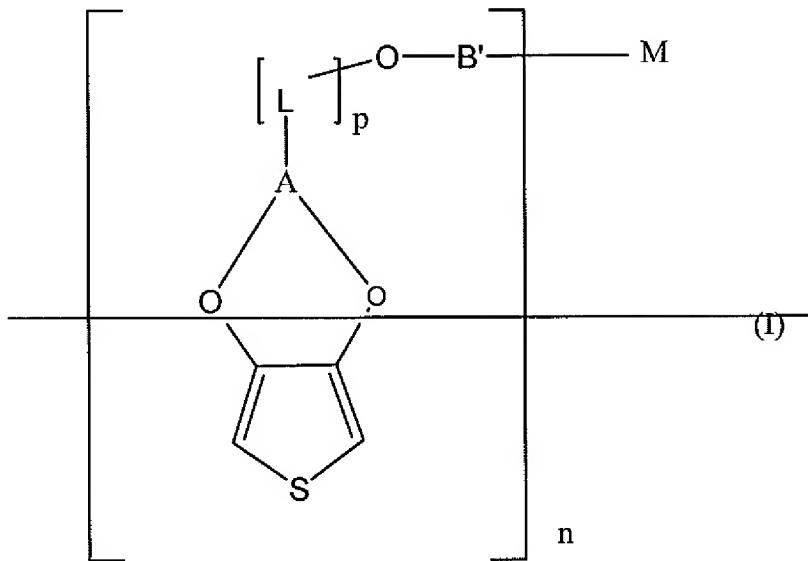
m is 0 or 1, and

Q is O, S or NH

~~with the proviso that said polythiophenes is not~~



67. (Currently Amended) A ~~3,4-Alkylenedioxythiophenes~~ 3,4-Alkylenedioxythiophene of the formula (I),



wherein

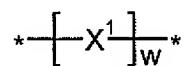
A is a C_1 - C_5 -alkylene radical which is substituted at any point by a linker

L and optionally bears further substituents,

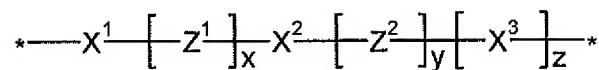
L is a methylene group;

p is 0 or an integer from 1 to 6;

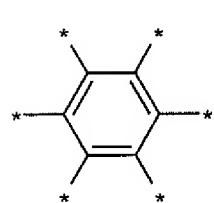
M is an n-functional group of the formula (II-a), (II-b) or (II-c-1) to (II-c-6),



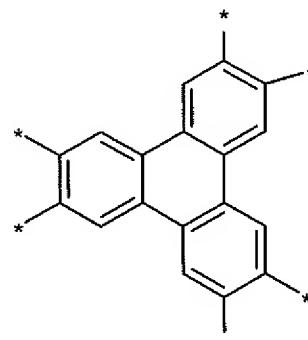
(II-a)



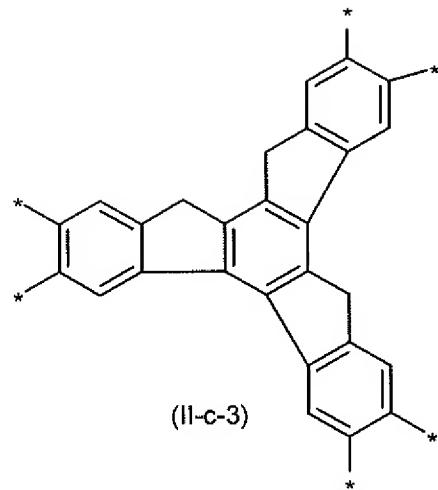
(II-b)



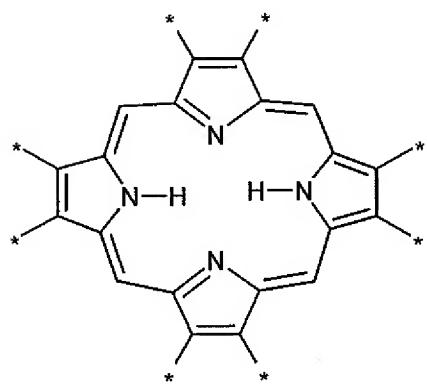
(II-c-1)



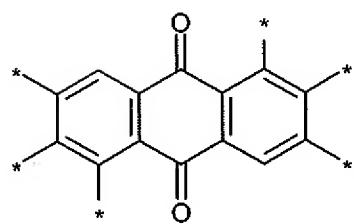
(II-c-2)



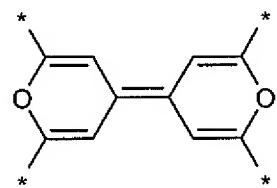
(II-c-3)



(II-c-4)



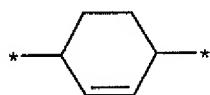
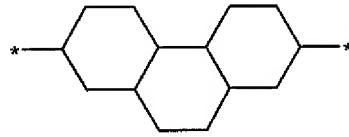
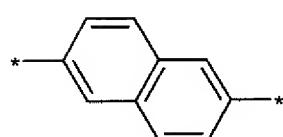
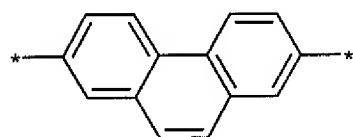
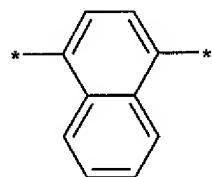
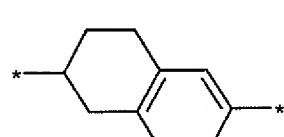
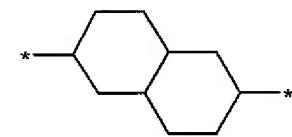
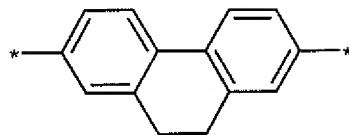
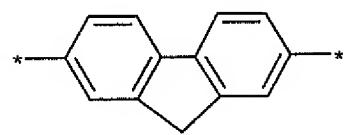
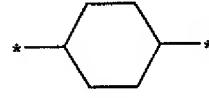
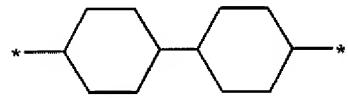
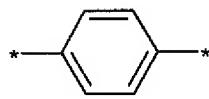
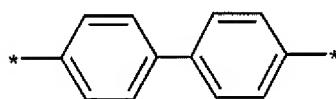
(II-c-5)

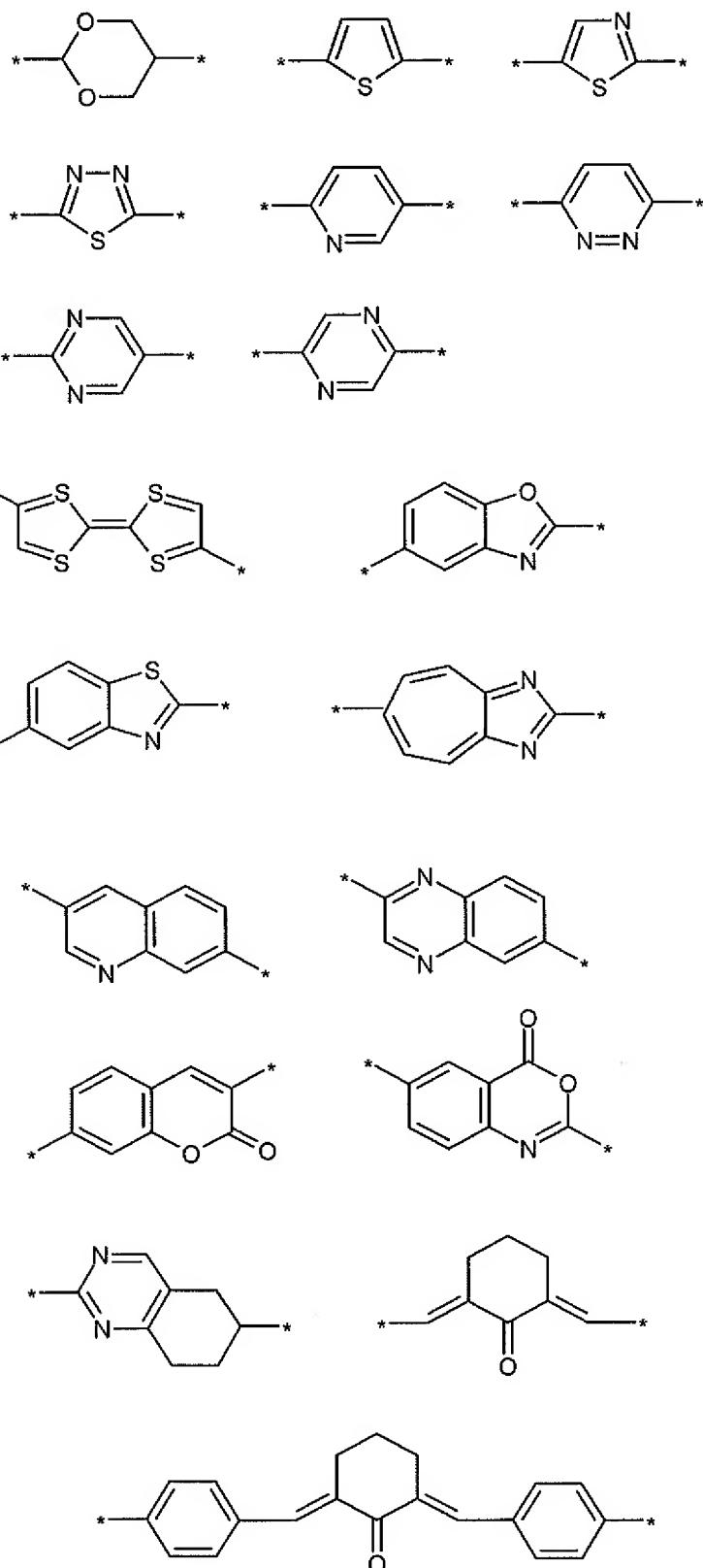


(II-c-6)

wherein

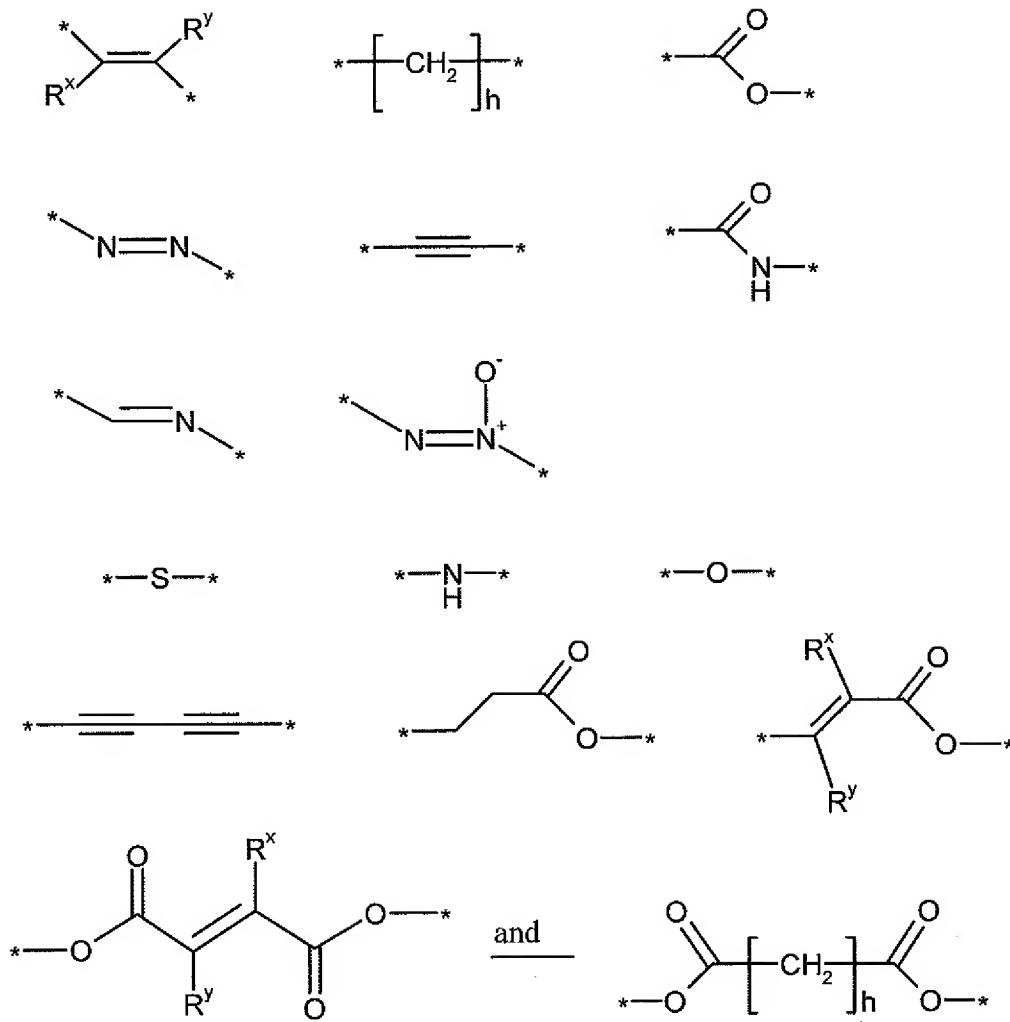
X^1 , X^2 and X^3 are substituted or unsubstituted structures selected independently from the group consisting of





and

Z^1 and Z^2 are structures selected independently from the group consisting of



wherein

R^x and R^y are each, independently of one another, H, substituted or unsubstituted C₁-C₂₂-alkyl, C₁-C₂₂-haloalkyl, C₁-C₂₂-alkenyl, C₁-C₂₂-alkoxy, C₁-C₂₂-thioalkyl, C₁-C₂₂-iminoalkyl, C₁-C₂₂-alkoxycarbonyl, C₁-C₂₂-alkoxycarbonyloxy, a radical of an aliphatic C₁-C₂₂-alkanecarboxylic acid or of acrylic acid, halogen, pseudohalogen, NO₂, a carboxyl group or a hydroxy group,

h is an integer from 1 to 10,

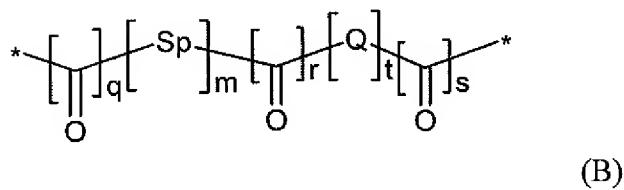
w is an integer from 1 to 5,

x, y and z are each, independently of one another, 0 or 1, and

n an integer from 1 to 8, where when n is 1, the group of the formula (II-a) or (II-b) bears a terminal group F' at the linkage points denoted by *, wherein

F' is substituted or unsubstituted C₁-C₂₂-alkyl, C₁-C₂₂-haloalkyl, C₁-C₂₂-alkenyl, C₁-C₂₂-alkoxy, C₁-C₂₂-thioalkyl, C₁-C₂₂-iminoalkyl, C₁-C₂₂-alkoxycarbonyl, C₁-C₂₂-alkoxycarbonyloxy, a radical of an aliphatic C₁-C₂₂-alkanecarboxylic acid or of acrylic acid, halogen, pseudohalogen, a nitro (NO₂) group, a carboxyl group, a sulphonate group or a hydroxy group,

B' is a bridging group of the formula (B)



wherein

q is 0 or 1,

r is 1,

s is 0,

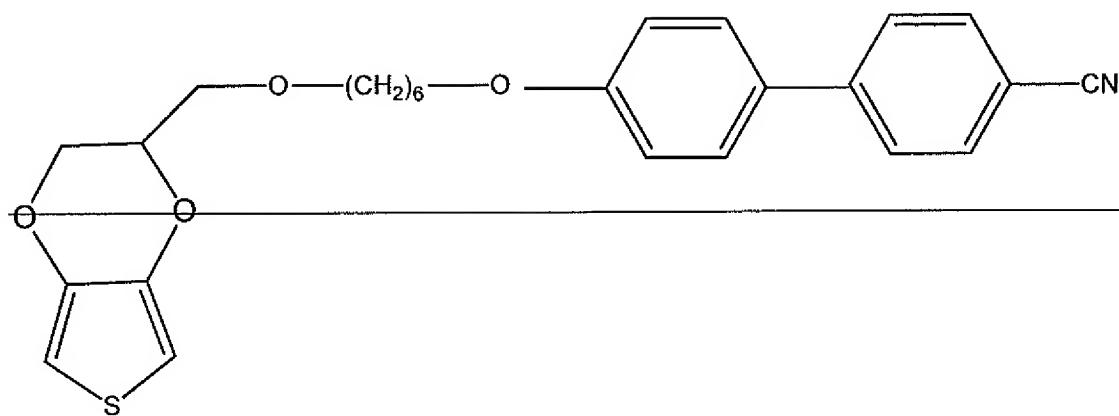
t is 0 or 1,

Sp is a spacer selected from the group consisting of substituted and unsubstituted linear or cyclic C₁-C₂₀-alkylene groups, C₅-C₂₀-arylene groups, C₂-C₂₀-heteroarylene groups in which from one to three heteroatoms selected from the group consisting of N, O and S can additionally be present in the heteroaromatic ring or ring system, C₆-C₂₀-aralkylene groups, C₂-C₂₀-oligoether and -polyether groups,

m is 0 or 1, and

Q is O, S or NH

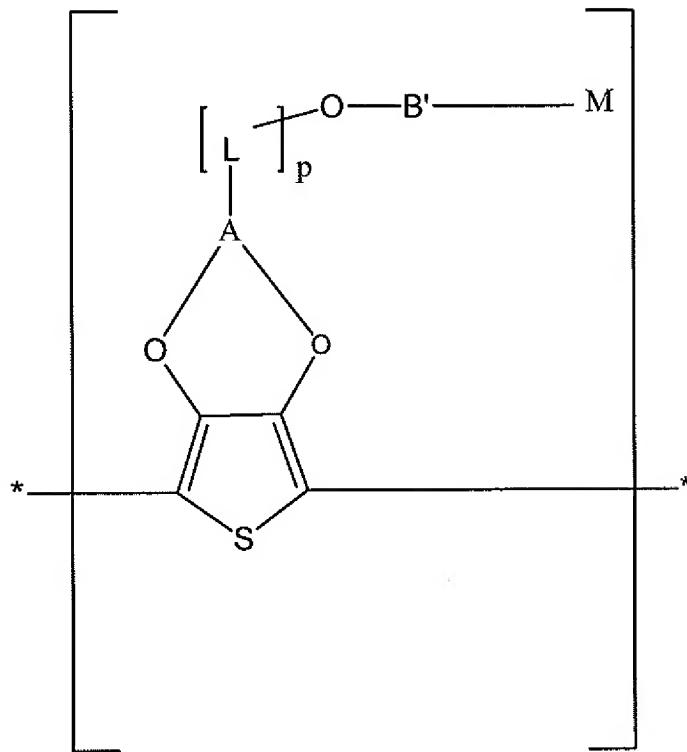
with the proviso that said polythiophenes is not



68. (Cancelled)

69. (Cancelled)

70. (New) A polythiophene which comprise recurring units of the formula (IV),



(IV)

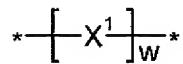
wherein

A is a C₁ or C₃-C₅-alkylene radical which is substituted at any point by a linker L and optionally bears further substituents,

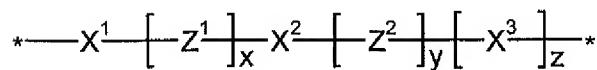
L is a methylene group,

p is 0 or an integer from 1 to 6,

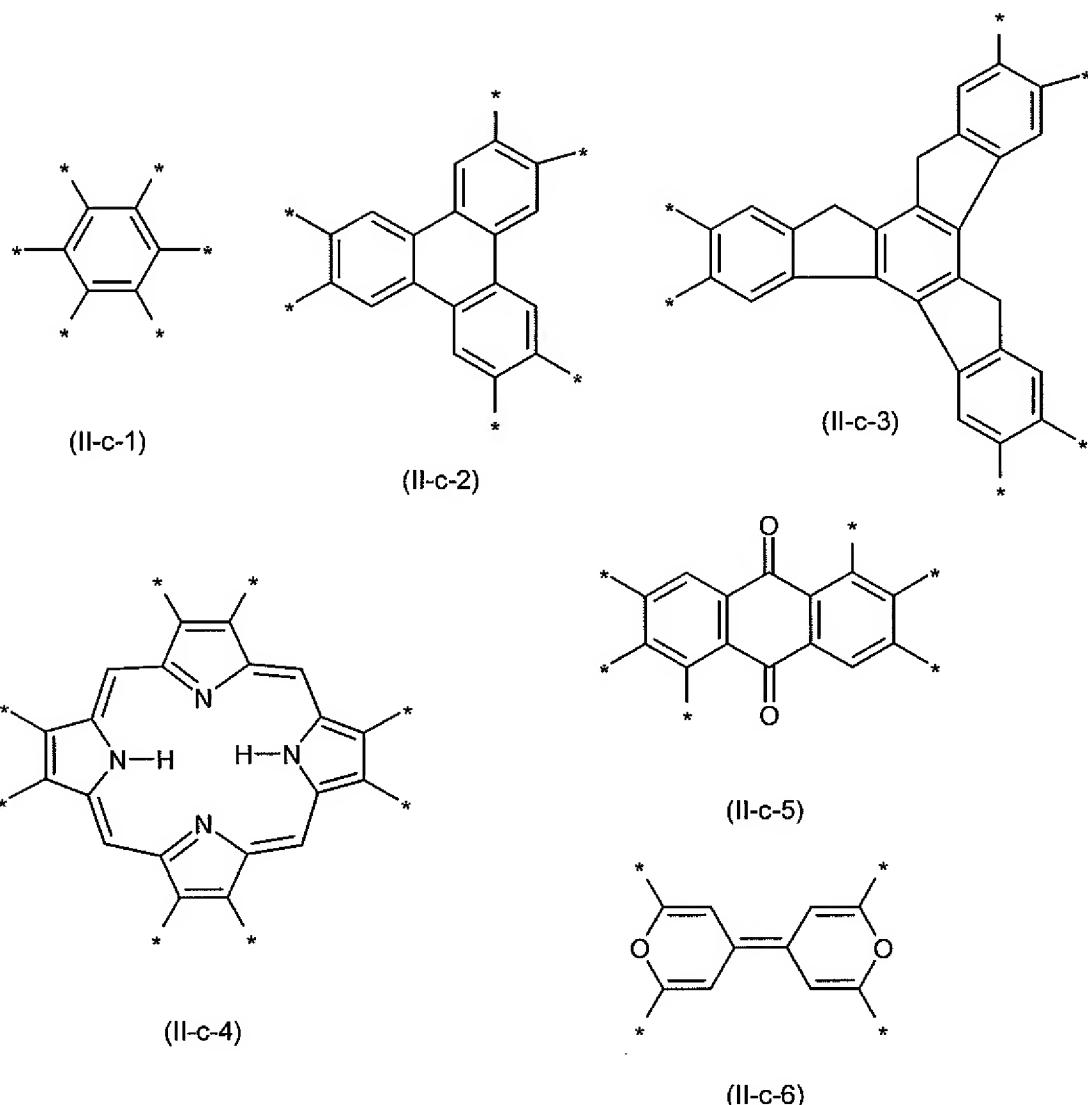
M is an n-functional group of the formula (II-a), (II-b) or (II-c-1) to (II-c-6),



(II-a)

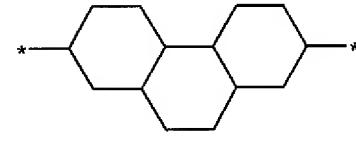
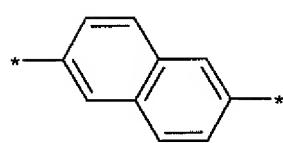
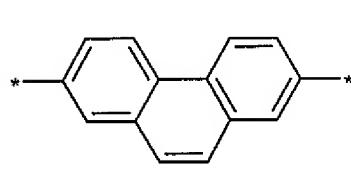
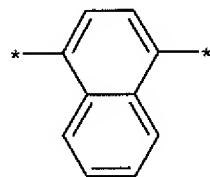
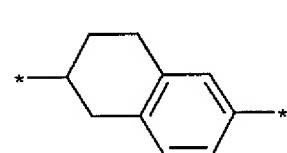
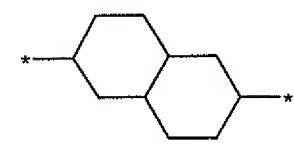
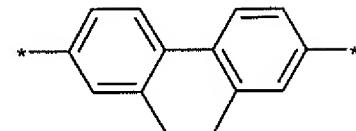
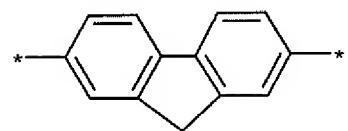
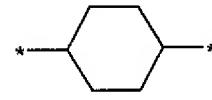
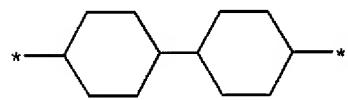
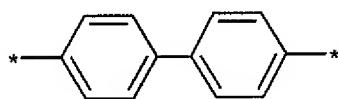


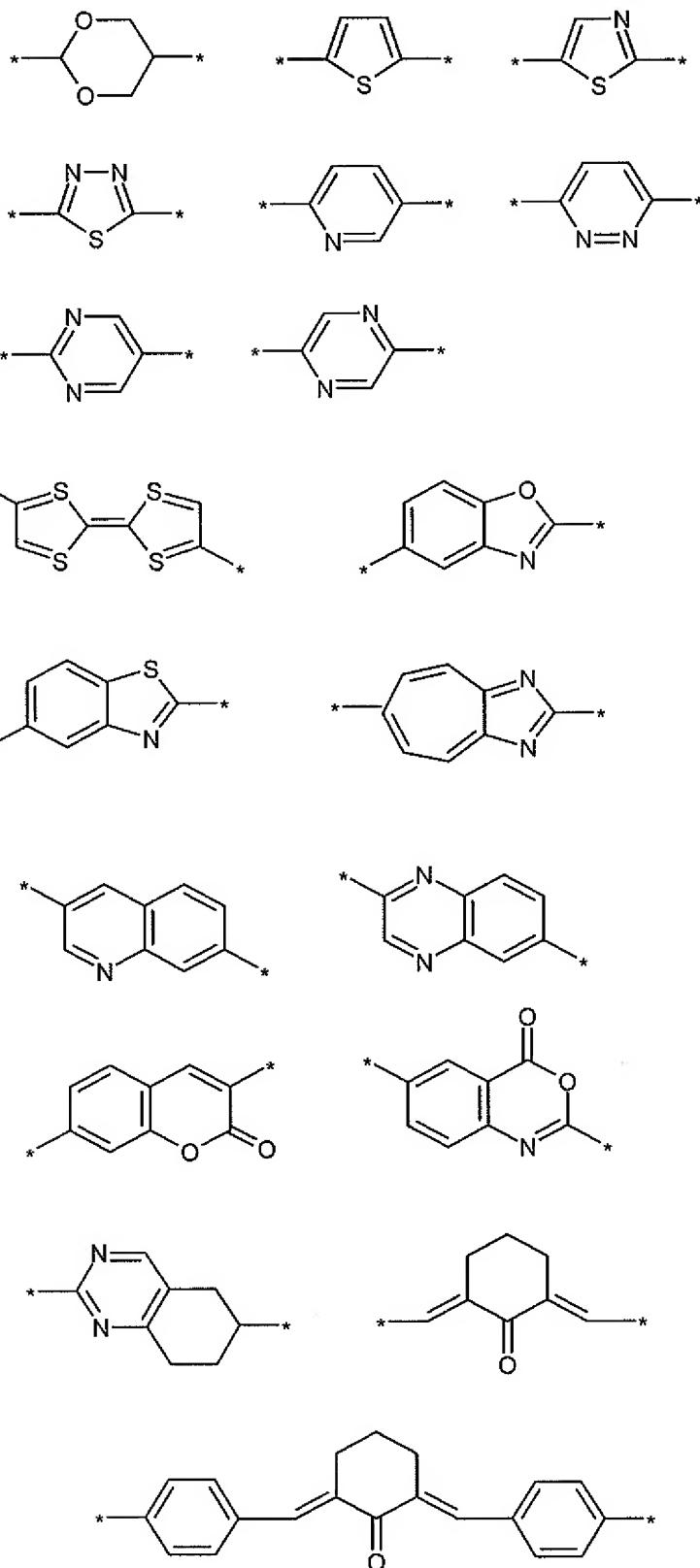
(II-b)



wherein

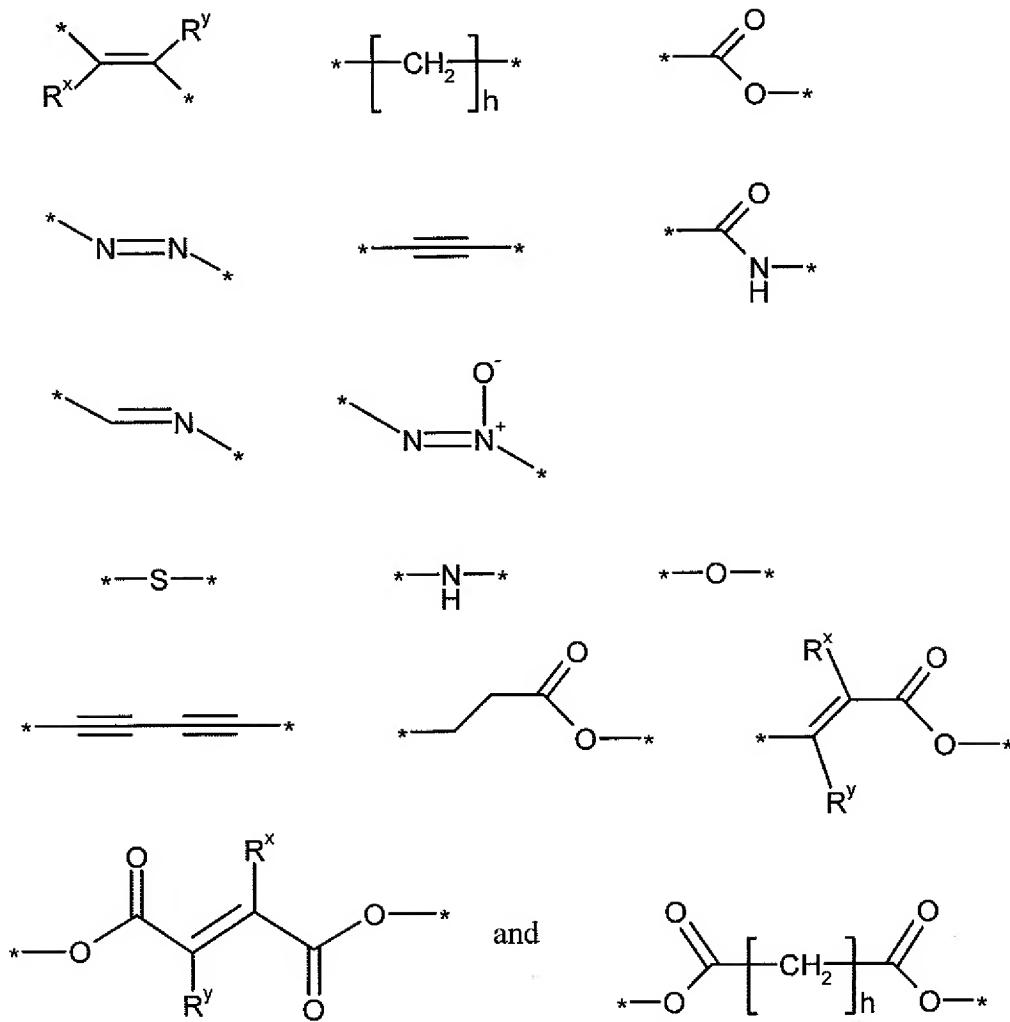
X^1 , X^2 and X^3 are substituted or unsubstituted structures selected independently from the group consisting of





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R^x and R^y are each, independently of one another, H, substituted or unsubstituted C₁-C₂₂-alkyl, C₁-C₂₂-haloalkyl, C₁-C₂₂-alkenyl, C₁-C₂₂-alkoxy, C₁-C₂₂-thioalkyl, C₁-C₂₂-iminoalkyl, C₁-C₂₂-alkoxycarbonyl, C₁-C₂₂-alkoxycarbonyloxy, a radical of an aliphatic C₁-C₂₂-alkanecarboxylic acid or of acrylic acid, halogen, pseudohalogen, NO₂, a carboxyl group or a hydroxy group,

h is an integer from 1 to 10,

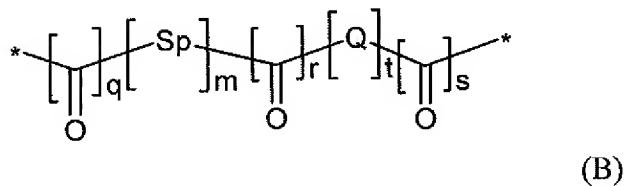
w is an integer from 1 to 5,

x, y and z are each, independently of one another, 0 or 1, and

n an integer from 1 to 8, where when n is 1, the group of the formula (II-a) or (II-b) bears a terminal group F' at the linkage points denoted by *,
wherein

F' is substituted or unsubstituted C₁-C₂₂-alkyl, C₁-C₂₂-haloalkyl, C₁-C₂₂-alkenyl, C₁-C₂₂-alkoxy, C₁-C₂₂-thioalkyl, C₁-C₂₂-iminoalkyl, C₁-C₂₂-alkoxycarbonyl, C₁-C₂₂-alkoxycarbonyloxy, a radical of an aliphatic C₁-C₂₂-alkanecarboxylic acid or of acrylic acid, halogen, pseudohalogen, a nitro (NO₂) group, a carboxyl group, a sulphonate group or a hydroxy group,

B' is a bridging group of the formula (B)



wherein

q is 0 or 1,

r and s are identical or different and each are 0 or 1, with the proviso that when r is 1, s is 0 and vice versa or both are optionally 0,

t is 0 or 1,

Sp is a spacer selected from the group consisting of substituted and unsubstituted linear or cyclic C₁-C₂₀-alkylene groups, C₅-C₂₀-arylene groups, C₂-C₂₀-heteroarylene groups in which from one to three heteroatoms selected from the group consisting of N, O and S can additionally be present in the heteroaromatic ring or ring system, C₆-C₂₀-aralkylene groups, C₂-C₂₀-oligoether and -polyether groups,

m is 0 or 1, and

Q is O, S or NH.